



How to Perform a FEMA Ground Based Response

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Brunswick County





Overview

- **FEMA**
 - Policies
 - Documentation
- **Mosquito Abatement**
- **Hurricane Florence**
 - What Happened
 - Requests
 - Divide and Conquer
- **Templates**



*"Everyone has a plan, until they
get punched in the mouth."*



-Mike Tyson



FEMA

RECOVERY POLICY – RP9523.10

I. TITLE: **Eligibility of Vector Control (Mosquito Abatement)**

II. DATE:

III. PURPOSE:

This policy describes the criteria the Federal Emergency Management Agency will use to determine eligibility for vector control (mosquito abatement) measures.



FEMA RECOVERY POLICY – RP9523.10

Availability

- **A. Vector Control for Disease-Carrying or Extraordinary Mosquito Populations.** Vector control measures may be eligible in the disaster area as emergency protective measures under 44 CFR §206.225(a)(3)(i). FEMA may provide reimbursement for such costs at the written request of the State or local public health officials after FEMA consults with the Centers for Disease Control and Prevention (CDC), based on the following:
 - 1. Evidence of **higher levels of disease transmitting mosquitoes** in the disaster area following the event or a significant number of disease-carrying mosquitoes in the area due to the increase in event-related standing water; or evidence of the potential for disease transmission and human exposure to disease carrying **mosquitoes based on the detection of arboviral diseases in sentinel organisms (poultry, wild birds, mosquito pools) in the impacted area; prior to the storm event, discovered during surveillance as part of mosquito abatement activities, or reported human cases in which transmission occurred prior to the storm event.** Presence of known primary and secondary vector species in an affected area may **presage future event-related disease transmission.**
 - 2. A determination that a significant increase in the mosquito population and/or the change of biting mosquito species **poses a threat to emergency workers who are required to work out-of-doors; thereby significantly hampering response and recovery efforts.** Such evidence may include an abnormal rise in landing rates or trap counts, significant changes in species composition or estimate of infection rates, when compared to pre-disaster surveillance results.
 - 3. Verification from medical facilities within the affected area that an increase in the general public's **exposure to mosquitoes** has directly resulted in secondary infections, especially among those with weakened immune systems such as the elderly, the very young, or the sick. This may occur when increased numbers of residents in disaster areas with **extended power outages** are forced to open buildings for air circulation.



FEMA Policy 9523.10 8B(3)

Necessary Documentation

- Additional Information that assists in making an assessment of needs includes:
 - The amount and types of flooding (e.g. saltwater/freshwater, coastal/inland)
 - The extent and location of damage to housing
 - The extent, location, and anticipated duration of power interruption.
 - The anticipated extent and duration of cleanup/recovery operations
- This information should be acquired from your local (county or municipal) emergency management team before applying for funding through FEMA.



9523.10 Eligibility of Vector Control (Mosquito Abatement)

— Eligible Costs.

- FEMA will only reimburse for the increased operating cost for mosquito abatement. This is calculated by comparing the disaster related costs to the **last three years of expenses (the actual response period)** whether through force account or use of contractors, for the same period.
- The description of the type of mosquito management and duration of application are required to establish the eligible scope of work.
- FEMA will assist in generating equipment rates if the applicant cannot produce their own.
- Costs for information dissemination as outlined in Section C.3.(b) of this policy may be reimbursed upon verification of expenses.



The North Carolina Pesticide Law of 1971.

143-§ 434.(1971, c. 832, s. 1.)



- **§ 143-466. Records; information; inspection; enforcement.**
- (a) The Board shall require licensees to maintain records with respect to the sale and application of such pesticides as it may from time to time prescribe. Such relevant information as the Board may deem necessary may be specified by rule. **The records shall be kept for a period of three years from the date of the application of the pesticide to which the records refer, and shall be available for inspection and copying by the Board or its agents at its request.**



Hurricane Florence

FEMA Reporting 2018



FEMA

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Hurricane Florence 2018

- Rainfall Amount
- Total Requests 2018
- Requests per Week
- Mosquito Population by Week
 - Mosquito pooling



What Happened?

- Early in the storm's history, the system brought squall conditions to the Cape Verde islands, resulting in some landslides and flooding.
- With the threat of a major impact in the Southeastern and Mid-Atlantic United States becoming evident by September 7, the governors of North Carolina, South Carolina, Virginia, Georgia, and Maryland, and the mayor of Washington, D.C. declared a state of emergency.
- On September 10 and 11, the states of North Carolina, South Carolina, and Virginia all issued mandatory evacuation orders for some of their coastal communities, predicting that emergency personnel would be unable to reach people there once the storm arrived.



What Happened?

- The Cape Fear River crested at 61.4 ft (18.7 m)—about 35 ft (11 m) above flood stage—near Fayetteville early on September 19. The magnitude of flooding greatly exceeded the levels observed due to Hurricane Matthew in 2016. The nearby Little River inundated large areas across Cumberland and Harnett counties. Overtopped bridges isolated communities and hampered relief efforts.
- Damage statewide reached an estimated \$17 billion, more than the combined damage of Hurricane Floyd and Hurricane Matthew in the state, according to Governor Roy Cooper. Estimated insurance losses ranged between \$2.8–5 billion.

FLORENCE HISTORY

AUG. 31 - SEP. 17, 2018

DEPRESSION T.S. HURRICANE CAT. 3+

UNITED STATES

SEPT. 14: LANDFALL AS
CATEGORY 1
WRIGHTSVILLE BEACH, N.C.

SEPT. 6: WEAKENS TO A
TROPICAL STORM

SEPT. 10: BECOMES A
CATEGORY 4 HURRICANE

SEPT. 5: STRENGTHENS
INTO CATEGORY 4
HURRICANE

SEPT. 1: BECOMES
TROPICAL STORM
FLORENCE

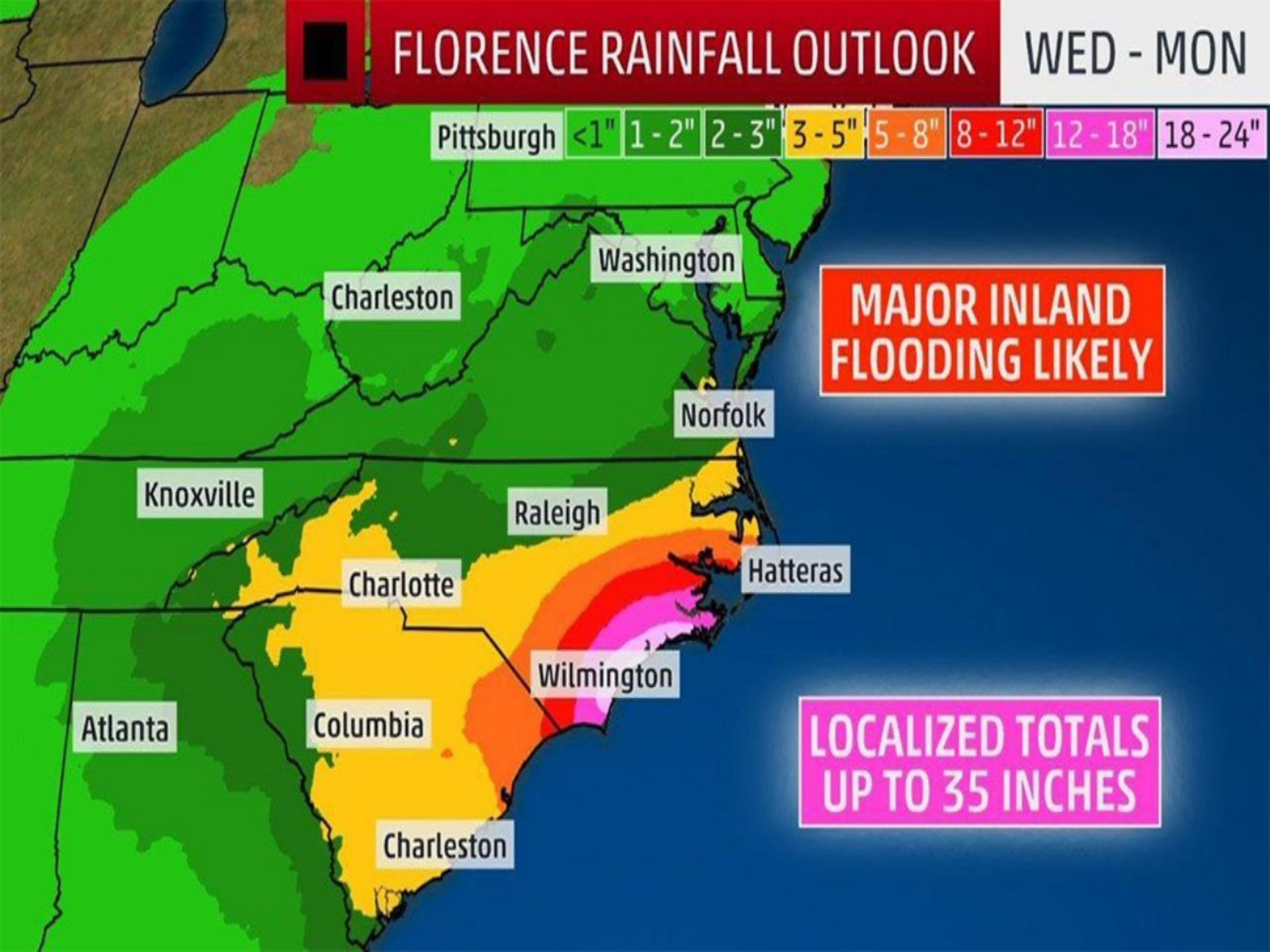
AUG. 31: T.D. SIX
FORMS

The
Weather
Channel

FLORENCE RAINFALL OUTLOOK

WED - MON

Pittsburgh <1" 1-2" 2-3" 3-5" 5-8" 8-12" 12-18" 18-24"

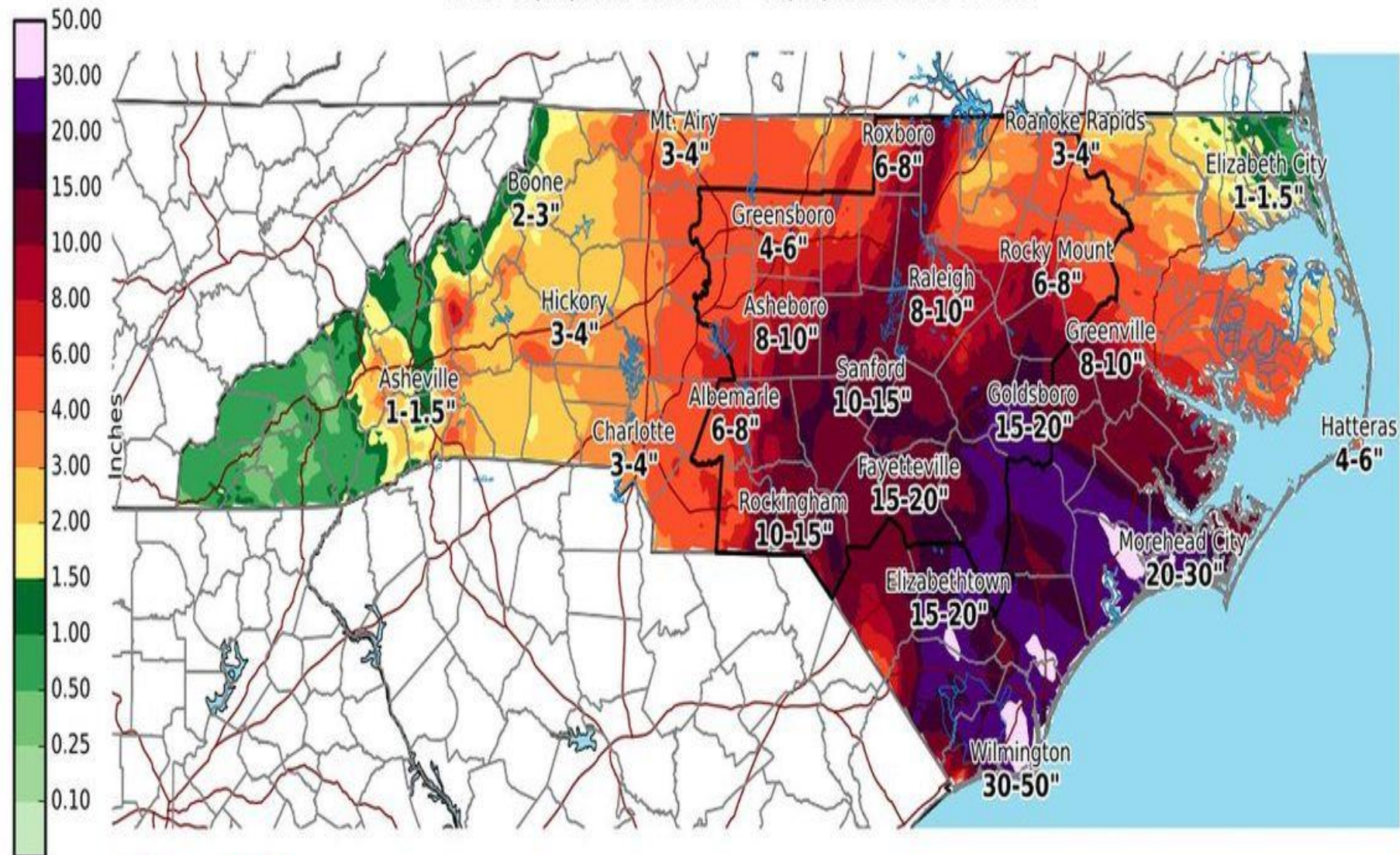


**MAJOR INLAND
FLOODING LIKELY**

**LOCALIZED TOTALS
UP TO 35 INCHES**

Radar-Estimated Florence Total Rainfall

Valid: 09/13/2018 08:00 AM - 09/17/2018 08:00 PM EDT



National Weather Service
Raleigh, North Carolina
09/18/2018 04:10 AM EDT

Follow Us:   
weather.gov/raleigh



What Happened?

- The impacts of Hurricane Florence resulted in a significant increase in the mosquito population and significantly hampered response and recovery efforts. Evidence included an abnormal increase in landing rates and trap counts. Extreme flood waters contributed to mosquito population increasing the potential for disease transmission and human exposure to disease carrying mosquitoes. Both ground and aerial abatement was completed to reduce the immediate threat to public health and safety.
- During September 20th – October 1st Brunswick County used its labor force, equipment and materials to conduct ground mosquito control.
- Cost Summary:
 - FA Labor: \$7,861.76
 - FA Equipment: \$2,979.15
 - FA Materials: \$5,741.10
- On October 1, 2018 the Board of Commissioners approved to enter into an emergency agreement for aerial spraying of mosquitoes for approximately 325,160 acres with Vector Disease Control with a total cost of \$686,473.87.
- On October 15, 2018 the Board of Commissioners approved an agreement addendum for 911 Mosquito Abatement (Hurricane Florence) from the NC Department of Public Health for emergency mosquito abatement in the amount of \$199,913. This state assistance amount has been deducted from the total invoices for aerial mosquito spray for FEMA submission.

75/25

75% - FEMA

25% - Local government



What Happened?

SPRAY REQUESTS

WEEK	Date	Daily total	Weekly Total	
38	Friday, September 21, 2018	5		*County Offices Closed
38	Saturday, September 22, 2018	2	17	*County Offices Closed
38	Sunday, September 23, 2018	10		*County Offices Closed
38	Monday, September 24, 2018	2,512		
39	Tuesday, September 25, 2018	2,232		
39	Wednesday, September 26, 2018	2,075		
39	Thursday, September 27, 2018	1,058		
39	Friday, September 28, 2018	256		
39	Saturday, September 29, 2018	85		
39	Sunday, September 30, 2018	60	8,278	
40	Monday, October 1, 2018	137		
40	Tuesday, October 2, 2018	63		
40	Wednesday, October 3, 2018	49		
40	Thursday, October 4, 2018	13		Grand Total
40	Friday, October 5, 2018	2	264	8,559
		8,559		



Citizen Requests 2018

- **Requests came to:**
 - our office phones (4 lines)
 - Spare line designated specifically for mosquito requests
 - Online
 - County administration
 - Some folks utilized all the above options, although the online route was highly encouraged
- **We received 8,559 requests from the general public from the hurricane.**
- **We received 9,138 total requests for the year.**



Divide and Conquer

- Our 3 man crew became a 6 man crew in response to the hurricane efforts. We utilized 3 temporary sprayers for the time, gave a crash course on spraying techniques, and gave them areas to spray that they were familiar with.
- The full time sprayers prepared the spray routes and contacted the “Call Before Sprays” and “Do Not Sprays” for the temporary sprayers prior to everyone dispersing to their respective routes.
- We also maintained an open line of communication to ensure minimal risk of accident.



Divide and Conquer

- We started spraying South of Shallotte, near the South Carolina state line, because there was less water in the area.
- Next, we worked the coastal routes, from South to North towards Leland and New Hanover county.
- Once the water in the inland areas receded, and conditions were safe, the western and more inland areas were sprayed.



Divide and Conquer

- Because of the excessive requests and calls coming in, we stayed on the roads while spraying and kept moving forward.
- We also gathered landing count data from certain areas and set light traps to gather data pre and post aerial spray.
- We sprayed until the route was completed.



FEMA Templates



FEMA Employee Reporting

1. APPLICANT		2. PAID		3. PROJECT NO.	
Brunswick, County of		019-99019-00			
5. LOCATION/SITE		6. CATEGORY			
Unincorporated Areas of Brunswick County		B - EMERGENCY PROTECTIVE MEASURES			
8. DESCRIPTION OF WORK PERFORMED					
Ground Mosquito Response					
NAME					
JOB TITLE					
NAME					
Papa Don					
JOB TITLE					
NAME					
Sheamus McFarland					
JOB TITLE					
Vector Control Operator					
NAME					
Billy the Barber					
JOB TITLE					
Vector Control Operator					
NAME					
Frankie Fish Eyes					
JOB TITLE					
Skilled Trades Worker					
NAME					
Freddie Four Fingers					
JOB TITLE					
Grounds Assistant II					
NAME					
Joey Pants					
JOB TITLE					
Gas Mechanic / Auto Body Tech					
NAME					
Tony Tutone					
JOB TITLE					
Grounds Assistant I					
NAME					
Jimmy the Goon					
JOB TITLE					
Diesel Mechanic					
NAME					
Casey Jones					
JOB TITLE					
Grounds Assistant II					
NAME					
Phil Giamani					
JOB TITLE					
Vector Control Operator II					

DATE

Mon 9/10 12p

Tue 9/11

Wed 9/12

Thur 9/13

Fri 9/14

Sat 9/15

Sun 9/16

Mon 9/17

Tue 9/18

Wed 9/19

Thur 9/20

Fri 9/21

Sat 9/22

Sun 9/23

Mon 9/24

Tue 9/25

Wed 9/26

Thur 9/27

Fri 9/28

Sat 9/29

Sun 9/30

Mon 10/1

Tue 10/2

Wed 10/3 9:30a

TOTAL HRS Formula

HOURLY RATE

PP

REG	8.0	8.0								8.5	9.0	6.0	2.3	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	105.8	\$	
O.T.														5.3	3.3	1.0	4.3	1.0	6.5	3.8			25.0	\$	
REG	8.0	8.0								8.0	3.5			8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	91.5	\$	
O.T.														2.3	0.5	0.5	2.0	2.0	7.3	1.5			16.0	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.																							0.0	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.															6.3		6.0		8.0				20.3	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.															8.3	7.5	8.0						23.8	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.														6.0	5.8	6.3		7.3	6.5				31.8	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.																	2.5	5.3					7.8	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.															6.3	6.3		7.0	7.8				27.3	\$	
REG	8.0	8.0												8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	80.0	\$	
O.T.															6.3		7.5	7.3					21.0	\$	
REG	8.0	8.0										8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	88.0	\$	
O.T.														4.0	8.8	2.3	2.0	2.8	8.8	3.3	3.0		34.8	\$	

I CERTIFY THAT THE ABOVE INFORMATION WAS OBTAINED FROM PAYROLL RECORDS, INVOICES, OR OTHER DOCUMENTS THAT ARE AVAILABLE FOR A

CERTIFIED

Heather Murray

TITLE

Assistant Director of Administration

Note: Do not enter directly in to the column for "Benefit Rate/HR". This column is linked to the "Fringe Benefit Worksheet" and will automatically calculate based on the percentages entered i



FEMA Equipment Rates

STATE DISASTER FORCE ACCOUNT EQUIPMENT SUMMARY RECORD																															
1. APPLICANT Brunswick, County of		2. PAID 019-99019-00		3. PROJECT NO.																											
5. LOCATION/SITE Unincorporated Areas of Brunswick County		6. CATEGORY B - EPM																													
8. DESCRIPTION OF WORK PERFORMED Ground Mosquito Response																															
TYPE OF EQUIPMENT		EQUIP. CODE NUMBER	OPERATOR'S NAME	DATES AND HOURS USED EACH DAY																											
INDICATE SIZE, CAPACITY, HORSEPOWER, MAKE AND MODEL AS APPROPRIATE	DATE			Mon 9/10	Tue 9/11	Wed 9/12	Thur 9/13	Fri 9/14	Sat 9/15	Sun 9/16	Mon 9/17	Tue 9/18	Wed 9/19	Thur 9/20	Fri 9/21	Sat 9/22	Sun 9/23	Mon 9/24	Tue 9/25	Wed 9/26	Thur 9/27	Fri 9/28	Sat 9/29	Sun 9/30	Mon 10/1	Tue 10/2	Wed 10/3				
OSE 184 Grizzley Mosquito Sprayer 18 HP (OS-07-83)	8472		HOURS														7.0	4.5	4.5	5.5	5.0	3.3									
OSE 142 Grizzley Mosquito Sprayer 18 HP (OS-09-10)	8472		HOURS														4.0	3.3	2.0	4.3											
OSE 144 Grizzley Mosquito Sprayer 18 HP (OS-09-16)	8472		HOURS														3.5	1.5	2.3	4.5	5.3	3.8									
OSE 63 Grizzley Mosquito Sprayer 18 HP (OS-07-80)	8472		HOURS																3.3												
OSE 142 Grizzley Mosquito Sprayer 18 HP (OS-09-10)	8472		HOURS																		5.0	5.5									
OSE 63 Grizzley Mosquito Sprayer 18 HP (OS-07-80)	8472		HOURS																	3.8											
OSE 63 Grizzley Mosquito Sprayer 18 HP (OS-07-80)	8472		HOURS															3.0			5.0										
OSE 63 Grizzley Mosquito Sprayer 18 HP (OS-07-80)	8472		HOURS																			4.3									
OSE 143 Grizzley Mosquito Sprayer 18 HP (OS-07-81)	8472		HOURS																		3.5										
OSE 143 Grizzley Mosquito Sprayer 18 HP (OS-07-81)	8472		HOURS																	4.3											
OSE 143 Grizzley Mosquito Sprayer 18 HP (OS-07-81)	8472		HOURS																2.5												
OSE 143 Grizzley Mosquito Sprayer 18 HP (OS-07-81)	8472		HOURS															2.8													
OSE 62 Grizzley Mosquito Sprayer 18 HP (OS-07-88)	8472		HOURS																		3.0										
OSE 62 Grizzley Mosquito Sprayer 18 HP (OS-07-88)	8472		HOURS																3.0												
OSE 62 Grizzley Mosquito Sprayer 18 HP (OS-07-88)	8472		HOURS																	2.8											
OS-07-83 Ford Ranger Mosquito Spray Truck	8801		HOURS														8.8	6.5	6.0	7.5	6.8	5.0									
OS-09-10 Ford Ranger Mosquito Spray Truck	8801		HOURS														6.0	5.5	4.0	6.5											
OS-09-16 Ford Ranger Mosquito Spray Truck	8801		HOURS														5.3	3.8	4.5	6.5	7.0	5.5									
OS-07-80 Ford Ranger Mosquito Spray Truck	8801		HOURS																5.3												
OS-09-10 Ford Ranger Mosquito Spray Truck	8801		HOURS																		6.5	7.5									



NCDA Reporting Form

Classification	Date of Application	Location	Pesticide Name	EPA Registration #	Restricted Use (Yes or No)	Target Pest	Treatment Area Acres ⁽²⁾	Quantity	Applicator Registraion #
H. Florence	9/24/2018	Calabash	BioMist 3+15	8329-33	N	Mosquito	1,701.90	6.97	032-7210
H. Florence	9/24/2018	Ocean Aire	BioMist 3+15	8329-33	N	Mosquito	1,000.20	4.07	032-7210
H. Florence	9/24/2018	Galloway	BioMist 3+15	8329-33	N	Mosquito	97.10	0.43	032-8267
H. Florence	9/24/2018	Belville	BioMist 3+15	8329-33	N	Mosquito	827.40	3.75	032-8267
H. Florence	9/25/2018	Gray Bridge	BioMist 3+15	8329-33	N	Mosquito	9.60	0.13	032-7210
H. Florence	9/25/2018	Royal Oak	BioMist 3+15	8329-33	N	Mosquito	28.90	0.13	032-7210
H. Florence	9/25/2018	Galloway	BioMist 3+15	8329-33	N	Mosquito	1,133.90	4.86	032-7210
H. Florence	9/25/2018	St James A	BioMist 3+15	8329-33	N	Mosquito	1,449.20	6.52	032-7210
H. Florence	9/25/2018	Gilbert	BioMist 3+15	8329-33	N	Mosquito	646.60	2.82	032-7210
H. Florence	9/25/2018	Mt Misery	BioMist 3+15	8329-33	N	Mosquito	1,256.40	5.16	032-8267
H. Florence	9/25/2018	St James B	BioMist 3+15	8329-33	N	Mosquito	840.00	3.85	032-7210
H. Florence	9/26/2018	Galloway	BioMist 3+15	8329-33	N	Mosquito	104.50	0.43	032-7210
H. Florence	9/26/2018	Creek	BioMist 3+15	8329-33	N	Mosquito	1,001.40	4.7	032-7210
H. Florence	9/26/2018	Ash Little River	BioMist 3+15	8329-33	N	Mosquito	632.90	2.5	032-7210
H. Florence	9/26/2018	No 5 School	BioMist 3+15	8329-33	N	Mosquito	894.00	3.87	032-7210
H. Florence	9/26/2018	Govenors	BioMist 3+15	8329-33	N	Mosquito	667.40	3.22	032-7210
H. Florence	9/26/2018	Malmo Loop	BioMist 3+15	8329-33	N	Mosquito	895.00	3.88	032-8267
H. Florence	9/26/2018	Green Hill	BioMist 3+15	8329-33	N	Mosquito	708.70	1.81	032-7210
H. Florence	9/27/2018	Southport	BioMist 3+15	8329-33	N	Mosquito	441.70	1.79	032-7210
H. Florence	9/27/2018	Zion Hill	BioMist 3+15	8329-33	N	Mosquito	866.10	3.65	032-7210



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 - Policies
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- **Mosquito Abatement**
- **Hurricane Florence**
 - What Happened
 - Requests
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- **Templates**



Questions?